that will all turn on once power is returned. Such appliances that turn themselves on and off will be referred to as "automatic appliances". Assume the homeowner wants to reserve 4000 watts for loads such as lights, stove, toaster, hair dryer, etc. However, after a prolonged power outage, the owner wants to allocate more power to the automatic appliances for the first half hour once power is returned, to allow these appliances to recover from the outage. The home and generator could be equipped with two outlets for connecting power cables. The transfer box on the home can have the automatic appliances wired to one of these outlets, while the second outlet supports all the other appliances in the home.

In this illustrative example, to provide priority to the automatic appliances when power is first supplied by the generator, the first generator monitor 10a, connected to the outlet supporting the automatic appliances is set to use a reference Output of 6000 Watts surge and 5000 Watts continuous for the first 30 minutes after generator power starts. The second generator monitor 10b, supporting the remaining appliances is set with reference outputs of 1000 Watts surge and 1000 Watts continuous for the first 40 minutes after generator power starts. After the first 30 minutes, the first generator monitor 10a, supporting the automatic appliances reduces the reference outputs to 3000 Watts surge and 2000 Watts continuous. After the first 40 minutes the second generator monitor 10b, supporting the other appliances in the home increases the reference outputs to 4000 Watts surge and 4000 Watts continuous. The 10 minute difference in these changes (first generator monitor 10a changing after 30 minutes and the second generator monitor 10b, changing after 40 minutes) is for the purpose of allowing the other devices to respond to the changes in a way that does not signal more available capacity from the generator than actually exists. By executing this sequence, the system provides more power to the automatic appliances in the first 30 minutes after generator power starts. Thereafter, the generator power provided to the automatic appliances is reduced to a level that supports one or two automatic appliances simultaneously, and a larger portion of the generator power is provided to the remaining appliances in the home or facility.

With multiple generator monitors 10a, 10b, etc, the user can allocate a specific portion of the generator's power to a group of appliances supported by the generator monitor. A properly configured system can allocate enough power to the automatic appliances but force them to operate in sequence. In turn the system reserves the majority of the generator's power for the appliances that provide the other conveniences to the homeowner. The actual reference outputs and time frames may vary based on preferences, generator capacity and appliance loads. However, by using multiple generator monitors 10a, 10b, . . that support groups of separately wired appliances, the system of the present invention provides an additional method for managing the use of electricity from the generator.

Generator monitor 10 could also be connected to fuel level indicators in the generator fuel tank. Using intelligence related to the quantity of fuel remaining in the tank and generator consumption information, either input manually based on performance specifications, or calculated from past monitored fuel consumption, the generator monitor calculates and transmits a prediction of the time remaining before the tank is empty at the current load level, at full load or at any desired partial load level. This time to empty information is displayed by other devices in the system for monitoring by the users. In addition, the generator monitor 10 could measure the total kilowatt-hours transmitted to the home and report feed back data such as the Kilowatt-hour per quantity of fuel consumed by the generator. Such feed back data should compensate for the generator's range of efficiency and for the fuel used when at idle due to minimal or no power being drawn by the home. This calculation combined with the price of the fuel, could be used to compare the cost of electricity from the generator with the cost of higher, or spiking, utility rates. During times of high demand and/or high electric rates, this information allows the user to make an economic decision regarding the use of utility power vs. an alternate power source, independent of a power outage.

For simpler implementations of the embodiment of the invention, generator monitors 10 could be designed without display screens and with fewer settings. An inexpensive, and low function, generator monitor could be configured to calculate one set of GAP levels

with no reference to time of day. In this circumstance the generator monitor need only have two settings, one for the reference surge and one for the reference continuous. In most cases reference outputs on a simple generator monitor 10 would be set for the rated capacities of the generator. This scenario will again be clearer with examples that incorporate the other devices of the invention. For the moment, this simple design of the generator monitor 10 describes the minimum functionality. A number of generator monitor embodiments could be configured with various combinations of features described above.

Interrupt Switch

The purpose of an interrupt switch 20 is to disable an appliance by cutting off or interrupting power to the appliance whenever the assigned GAP levels fall below the appliance's start up load and continuous load. By interrupting power to the appliance, the interrupt switch 20 creates a local power failure for the supported appliance, and maintains this power interruption until the GAP levels rise to a point where the appliance load can be supported. By interrupting power to the appliance, the interrupt switch 20 assures that the appliance cannot start and apply a load that would trip the generator's circuit breaker. Once the transmitted GAP levels reach a level that supports the appliance load, the interrupt switch 20 enables the appliance by closing its switch, returning power to the appliance and allowing it to run, if required. The interrupt switch 20 executes a local decision process that makes power available to the appliance only when the generator is able to support the load of the appliance.

Figure 4 is a right side, front side, and left side view of an embodiment of the interrupt switch 20. The interrupt switch 20 includes a first dial 231 for priority setting, a second dial 232 for assigning the GAP level that the interrupt switch monitors (i.e. GAPS1 and GAPC1, GAPS2 and GAPC2, GAPS3 and GAPC3 of figure 3), a reset button 233 and an antenna 212 for receiving GAP level transmissions from the generator monitor 10, 10a, or 10b, and for transmitting switch status to the user displays 30 (see 18a and 18b in Figure 1, 1a) in the system.